

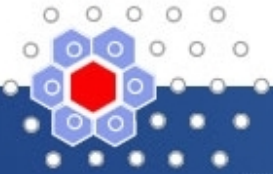
MONA-symposium

Presentation of the MONA Nanophotonics Technology Roadmap

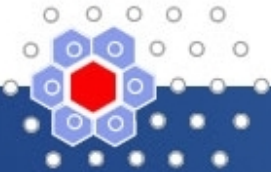
in collaboration with



Laurent Fulbert, CEA



- ◆ MONA (Merging Optics and Nanotechnologies) is a 30 months Specific Support Action supported by the FP6.
- ◆ Cooperative work between equipment manufacturers, nanoscale materials and photonics applications experts
- ◆ MONA partners: CEA-LETI (F), IMEC-Gent University (B), Acreo (S), Schott (D), Alcatel-Thalès III-V lab (F), Aixtron (D), ASMI (NL), EPIC (F), VDI-TZ (D), Opticsvalley (F), Yole Développement (F)
- ◆ MONA will help to identify and address the most critical scientific, technical and manufacturing issues of nanophotonics. This will ensure the building of a roadmap addressing **materials, equipment and applications**
- ◆ MONA will directly contribute to the Strategic Research Agenda of the European Technology Platform Photonics²¹



Sources: MONA partners, results of questionnaires and workshop Year 1

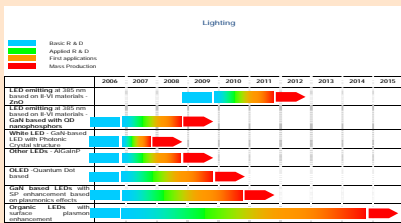
1. Identification of materials and applications classes

	Optical nanotechnology	Datacoms	Lighting	Data storage	Imaging	Sensors	Displays	Photovoltaics	Instrumentation
Semiconductor quantum dot/wires in silicon including colloidal nanostructures									
Semiconductor quantum dot/wires in III-V including colloidal nanostructures									
Semiconductor quantum dot/wires in II-VI including colloidal nanostructures									
Plasmonic/metallic nanostructures including colloidal nanostructures (metal)									
Photonic Crystal/High index contrast nanostructures in silicon									
Photonic Crystal/High index contrast nanostructures in III-V									
Photonic Crystal/High index contrast nanostructures in other materials									
Organic nanostructures									
Carbon Nanotubes (CNT)									
Integration of nanophotonic materials/structures with electronic (Co)Silicon Photonics									
Nanophotonic in glass or polymer									
Left-handed metamaterials									

2. Completion of segment roadmaps

	Optical nanotechnology	Datacoms	Lighting	Data storage	Imaging	Sensors	Displays	Photovoltaics	Instrumentation
Semiconductor quantum dot/wires in silicon including colloidal nanostructures									
Semiconductor quantum dot/wires in III-V including colloidal nanostructures									
Semiconductor quantum dot/wires in II-VI including colloidal nanostructures									
Plasmonic/metallic nanostructures including colloidal nanostructures (metal)									
Photonic Crystal/High index contrast nanostructures in silicon									
Photonic Crystal/High index contrast nanostructures in III-V									
Photonic Crystal/High index contrast nanostructures in other materials									
Organic nanostructures									
Carbon Nanotubes (CNT)									
Integration of nanophotonic materials/structures with electronic (Co)Silicon Photonics									
Nanophotonic in glass or polymer									
Left-handed metamaterials									

4. Analysis and final synthesis

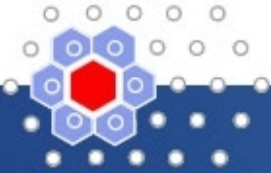


3. Consolidation with external inputs and feedback

	Optical nanotechnology	Datacoms	Lighting	Data storage	Imaging	Sensors	Displays	Photovoltaics	Instrumentation
Semiconductor quantum dot/wires in silicon including colloidal nanostructures									
Semiconductor quantum dot/wires in III-V including colloidal nanostructures									
Semiconductor quantum dot/wires in II-VI including colloidal nanostructures									
Plasmonic/metallic nanostructures including colloidal nanostructures (metal)									
Photonic Crystal/High index contrast nanostructures in silicon									
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Nanophotonic in glass or polymer									
Left-handed metamaterials									

Workshops
External experts
Public website

**Public feedback
until July 15th !**



- ◆ More than 50 segment roadmaps available on the website www.ist-mona.org
- ◆ More than 250 contributors (40% from industry)
- ◆ Final document edited in July

MONA
Merging Optics & Nanotechnologies

Roadmaps

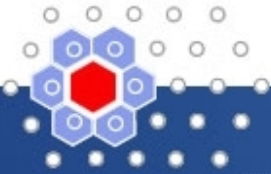
Select any combination of row/column to inspect the roadmap-documents available for that section and send comments to the author.

	Optical Interconnects	Datacoms / Telecoms	Lighting	Datastorage	Imaging	Sensors	Displays	Photovoltaics	Instrumentation/Metrology
Semiconductor quantum dot & wires in:									
silicon, including colloidal nanostructures	📄								
III-V, including colloidal nanostructures	📄	📄	📄	📄	📄	📄	📄	📄	
II-VI, including colloidal nanostructures		📄	📄	📄	📄	📄	📄	📄	
Plasmonics/metallic nanostructures including colloidal nanostructures (metal)	📄	📄	📄	📄					📄
Photonic crystals / High index contrast nanostructures									
in silicon	📄	📄	📄				📄		
in III-V	📄	📄	📄				📄		
in other materials		📄	📄				📄		
Organic nanostructures			📄					📄	📄
Carbon nanotubes (CNT)		📄						📄	📄
Integration nanophotonic materials / structures with electronic ICS/Silicon photonics	📄	📄			📄				
Nanoparticles in glass or polymer		📄	📄					📄	📄
Left-handed metamaterials			📄						📄

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Equipment Roadmaps

Internet 100%



Introduction session

15:00 Introduction (Laurent Fulbert, CEA)

15:10 Message from the Commission (Dr. Gustav Kalbe, EC)

Applications session

Lighting

15:25 MONA roadmap on lighting (Dr. Rainer Beccard, Aixtron)

15:40 Industrial vision (Dr. Michael Scholles, FhG IPMS)

Information/Communication

16:00 MONA roadmaps on Information/Communication (Dr. André Scavennec, Alcatel-Thales III-V LAB)

16:15 Integration issues in nanophotonics: example of PICMOS (Prof. Roel Baets, IMEC)

16:35 - 16:50 Break

Nanophotonic Materials session

16:50 MONA Materials roadmap (Prof. Roel Baets, IMEC)

17:05 Presentation of Phoremest roadmap (Dr. Dirk Holtmannspötter, VDI-Tz)

Equipment session

17:25 MONA Equipment roadmaps (Dr. Suvi Haukka, ASM)

17:40 Focus on Nanoimprint (Dr. Marc Beck, Obducat)

Discussion on Recommendations (Chairman Eric Mounier, Yole Développement)

18:00 Message from Photonics21 (Prof. Małgorzata Kujawińska, Warsaw University of Technology)

18:15 Presentation of Synthesis & Recommendations (Dr. Eric Mounier, Yole Développement)

18:35 Discussion Round on overall Recommendations with the Speakers

19:00 End of the symposium